

# PROCESS FOR FABRICATING COPPER DAMASCENE INTERCONNECT

## Abstract

A dielectric layer overlying a substrate is prepared. A damascene opening is etched into the dielectric layer. The damascene opening is filled with copper or copper alloy. A surface of the copper or copper alloy is treated with hydrogen-containing plasma such as H<sub>2</sub> or NH<sub>3</sub> plasma. The treated surface of the copper or copper alloy then reacts with trimethylsilane or tetramethylsilane under plasma enhanced chemical vapor deposition (PECVD) conditions. Subsequently, by PECVD, a silicon carbide layer is in-situ deposited on the copper or copper alloy.